1. A method for reducing defect levels in photomasks comprising:

providing a photomask having patterned metal layers;

treating the photomask to a cleaning process consisting of:

a solution of ammonium hydroxide, hydrogen peroxide and water maintained at a constant temperature range;

ultrasonic agitation;

an exposure time greater than 6 minutes;

removing particles and residues greater than about 0.2 microns while removing a minimal amount of patterned metal layer or layers; and

exercising the cleaning process on a patricular photomask for a multiple number cleaning cycles without degradation of the photomask.

2. The method of Claim 1 wherein the ratio of reagents ammonium hydroxide:hydrogen peroxide:water of the cleaning solution is from about 1:1:200 to about 1:1:20 respectively by volume.

3. The method of Claim 1 wherein the minimal amount of metal layer or layers removed during cleaning results in less than 6.3% increase in optical transmission.

4. The method of Claim 1 wherein the constant temperature range of the cleaning solution is from about 15 degrees centigrade to about 60 degrees centigrade.

5. The method of Claim 1 wherein the pH of the cleaning solution is maintained at an alkaline level above a value of about 8.

6. The method of Claim 1 wherein the number of multiple cleaning cycles exercised on a particular photomask without degradation is greater than about ten cleaning cycles.

7. A method for attenuating yield loss in fabrication of microelectronics fabrications employing phase shift phoptomasks by reducing defect levels in said photomasks comprising:

providing a phase shift photomask having patterned metal layers;

providing a phase shift photomask having patterned metal layers;

treating the phase shift photomask to a cleaning process consisting of: a

a solution of ammonium hydroxide and hydrogen peroxide in water maintained within a constant temperature range;

ultrasonic agitation; and

an exposure time greater than about six minutes;

removing particles greater than about 0.2 microns while removing a mnimal amount of patterned metal layers; and

exercising the cleaning procedure on a particular phase shift photomask for a multiple number of cleaning cycles without degradation of the phase shift photomask.

8. The method of claim 7 wherein the phase shift mask is formed of patterned layers of chromium and molybdenum silicon alloy.

9. The method of Claim 7 wherein the ratio of reagents ammonium hydroxide:hydrogen peroxide:water in the cleaning solution ranges from about 1:1:200 to about 1:1:20 by volume respectively.

10. The method of Claim 7 whereby the minimal amount of metal layers removed by the cleaning process is equivalent to less than about 6.3% increase in optical transmittance.

11. The method of Claim 7 whereby the constant temperature range of the cleaning solution is from about 15 degrees centigrade to about 60 degrees centigrade.

12. The method of Claim 6 wherein the pH of the cleaning solution is maintained at an alkaline level greater than a value of about 8.

13. The method of claim 7 wherein the number of cleaning cycles which may be exercised on a particular phase shift photomask without degradation is greater than ten cycles.